

**P**

Name \_\_\_\_\_

Date \_\_\_\_\_

Practice: For use after Lesson 8.9, Algebra 2 with Trigonometry

**Algebra 2**  
**Unit #3**  
**WS #9****Multiplication and Division of Complex Numbers**

Simplify.

1.  $(2 + 3i)(1 + 4i)$  \_\_\_\_\_
2.  $(5 + i)(3 + 2i)$  \_\_\_\_\_
3.  $(2 - 4i)(4 + 7i)$  \_\_\_\_\_
4.  $(3 + 5i)(4 - 6i)$  \_\_\_\_\_
5.  $(9 + 7i)(7 - 6i)$  \_\_\_\_\_
6.  $(1 - 2i)(2 - i)$  \_\_\_\_\_
7.  $(8 + i)(8 - i)$  \_\_\_\_\_
8.  $(4 - 3i)(4 + 3i)$  \_\_\_\_\_
9.  $(4 + i)^2$  \_\_\_\_\_
10.  $(2 - 5i)^2$  \_\_\_\_\_
11.  $\frac{5}{3 + 2i}$  \_\_\_\_\_
12.  $\frac{1}{1 + 2i}$  \_\_\_\_\_
13.  $\frac{3 + i}{4 - i}$  \_\_\_\_\_
14.  $\frac{1 - i}{4 - 5i}$  \_\_\_\_\_
15.  $(\sqrt{7} - 4i)(\sqrt{7} + 4i)$  \_\_\_\_\_
16.  $(\sqrt{11} + \sqrt{-9})(\sqrt{11} - \sqrt{-9})$  \_\_\_\_\_
17.  $(\sqrt{2} + 6i)^2$  \_\_\_\_\_
18.  $(\sqrt{5} - 2i)^2$  \_\_\_\_\_
19.  $(\sqrt{3} + 4i) \div (2\sqrt{3} - i)$  \_\_\_\_\_
20.  $(0.3 - 2i) \div (0.4 - 3i)$  \_\_\_\_\_

**Applications**

21. **Algebra** The solutions of a quadratic equation are  $3 + 2i$  and  $3 - 2i$ . Find the product of the two solutions. \_\_\_\_\_
22. **Electricity** The total voltage of one circuit is  $6 + 2i$  volts. The total voltage of a second circuit is  $5 - i$  volts. Find the ratio of the total voltage of the first circuit to that of the second circuit. \_\_\_\_\_

**MIXED PRACTICE**

Simplify.

23.  $\sqrt{3}(4 - 2\sqrt{6})$  \_\_\_\_\_
24.  $(2\sqrt{5} - 4)(3\sqrt{5} - 1)$  \_\_\_\_\_
25.  $\frac{3 + \sqrt{7}}{\sqrt{7}}$  \_\_\_\_\_
26.  $\frac{3}{6 - \sqrt{5}}$  \_\_\_\_\_
27.  $(2 + 7i)(3 - i)$  \_\_\_\_\_
28.  $(2 + \sqrt{-4}) - (-4 - \sqrt{-9})$  \_\_\_\_\_